## What is claimed is:

A packet transmitting method comprising the steps of:

controlling a timing of packet transmission in a transmission terminal on a packet network; and

controlling the amount of data to be transmitted per unit time from the transmission terminal to the network.

- The packet transmitting method according to claim 1, wherein the amount of data to be transmitted to the network per unit time is dynamically changed.
- 3. The packet transmitting method according to claim 1, wherein a packet is transmitted at an interval according to a packet size.
- 4. The packet transmitting method according to claim 1, wherein a packet is transmitted at an interval according to a packet size, and the amount of data to be transmitted to the network per unit time is dynamically changed.
- 5. A packet transmission apparatus comprising:

time calculating means for calculating time necessary for transmitting each packet; and

means for controlling a timing of packet transmission based on the time for transmitting each packet, calculated by the time calculating means.

6. A packet transmitting method comprising the steps of:

independently controlling a packet order and a packet flow rate in a transmission terminal on a packet network; and

carrying out bandwidth guaranteeing for a plurality of flows.

7. A packet transmission apparatus for transmitting a plurality of flows onto a packet network by carrying out bandwidth guaranteeing, comprising:

scheduling means for controlling an order of packets; and
shaping means for controlling a flow rate of packets,
wherein bandwidth guaranteeing is carried out for the plurality of flows by
independently controlling a packet order and a packet flow rate.

- The packet transmission apparatus according to claim 7, wherein the shaping means controls the flow rate of packets by hardware.
- 9. A bandwidth guaranteeing method comprising the steps of: managing a state of resource utilization by a flow unit at a transmission side; transferring data based on a single queue at a network intermediate node; and guaranteeing packet transmission within a bandwidth specified for a flow, resource reservation having been made therefor, on a packet network, and limiting packet transmission in a bandwidth exceeding the specified bandwidth.
- 10. The bandwidth guaranteeing method according to claim 9, wherein based on a label attached to a packet at the transmission side, at the network intermediate node, the flow having the resource reservation made therefor is distinguished from other flows, and set in a corresponding relation with a queue.
- 11. The bandwidth guaranteeing method according to claim 10, wherein at the network intermediate node, data transfer is carried out based on a queue corresponding

to the flow having the resource reservation made therefor and queues corresponding to the other flows.